

February Meeting: Friday, the **27th**, at 7:30 PM at the Perkins Restaurant at SR 73 and I-75.
Meeting topic: Mike Brown, W8DJY, will talk about RF measurements and demonstrate his Curl-E (Curly?) detector.
Plus the usual discussions on topics of general interest.

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Upcoming Events:

Southeastern VHF- Conference in **Atlanta. 3...4 April**

See: www.akorn.net/~aebe/svhfs

Hamvention: 15, 16, 17 May

de N8ZM

Lots to talk about this month, so here goes...

Gerd is off to Florida for a few weeks as he has been invited by AMSAT to assist with the final assembly of Phase 3D, which now looks like it will see a launch opportunity in May. I think they made an excellent choice to help with the tedious process of assembling and checking, double checking, and so on that is required to assure that everything will work right. As one of many who have helped finance this satellite, I appreciate that there are folks like Gerd willing to make the effort to make those contributions payoff. I should also mention that my other fellow MVUS officer, Bob French, N8EHA, recently received a special recognition plaque from AMSAT for his assistance in providing some of the very critical mechanical proof-of-performance testing that was required by the ESA. If the MVUS connection is a necessary qualification to being asked to help out with 3D, then my turn must be coming soon, although I don't know that there is much need for a guy whose only claim to fame is an uncanny ability to mess up punch lines.

I've been asked about the VHF dinner at HamVention, and yes, Virginia, there will be one, per a note passed along by Gerd from Tom Whitted, WA8WZG. Tom has, by now, certainly established himself as a terrific organizer, as witnessed by last year's dinner and the outstanding Microwave Update '97. There will be many good reasons to be there. See below for the details Gerd pulled off the 'net. I hope to again be able to arrange for the Noise Figure gear if Tom can provide the operator. (Someday I need to learn how to really use that box as well as Al Ward does!)

So far, there is no progress on the conversion of the 800 Mhz radios to the 902 band, but I expect to have some answers in time for the meeting.

I am still in need of folks to schedule time slots to help with the MVUS booth at HamVention. I know that it is only the end of February, but May really isn't all that far away, so please call me to schedule a couple of hours during the show.

On a personal note, I am now QRV on 2m and 70 cm SSB, and have actually worked outside of Montgomery County on both bands! Typical for me, I have forgotten that I now live in Miami County, so that may not be as impressive as it first sounds. Unconfirmed, I have two grid squares on 70 cm, and one on 2m from my sub see-level QTH. Maybe that explains my interest in the satellites!

The meeting this month will be an interesting and useful demonstration of something called a Curl-E detector by Mike Brown, W8DJY. We will, by the way, once again be meeting at the Perkins restaurant on SR 73 at I-75. This one should be very interesting.

73.....de N8ZM.

98 Hamvention VHF- Banquet

THE **VHF WEAK SIGNAL GROUP** THAT MEETS MONDAY NIGHTS AT 0200 UTC ON 3.843 MHZ, WOULD LIKE TO INVITE EVERYONE THAT IS COMING TO THE DAYTON HAMVENTION TO OUR ANNUAL BANQUET. WE HAVE RESERVED A ROOM, THAT WILL SEAT 125, ON **FRIDAY NIGHT MAY 15TH**. FROM 6:30 PM UNTIL 11:00 PM AT THE HOLIDAY INN NORTH, WAGONER FORD RD, DAYTON, OHIO . THERE WILL BE A CASH BAR AS WELL AS PLENTY OF SEATING TO ALLOW YOU TO MIX AND MINGLE WITH OTHER VHFERS FROM ALL OVER THE COUNTRY AND THE WORLD. THERE WILL BE OVER 50 PRIZES WITH TWO GRAND PRIZES WORTH OVER \$300 DOLLARS EACH BEING DRAWN STARTING AT 9:00 PM. ALSO, THERE WILL BE A GUEST SPEAKER WHO WILL PROVIDE A SHORT TALK ON VHF ACTIVITY. THERE WILL ALSO BE A NOISE FIGURE MEASURING TABLE SO BRING YOUR PREAMPS TO TWEAK. THE COST OF A TICKET TO ATTEND THIS FUNCTION WHICH INCLUDES THE 2 ENTREE BANQUET DINNER, IS ONLY \$30.00 PER PERSON, AND THEY ARE LIMITED TO 125 . YOU MAY ORDER YOUR TICKETS BY SENDING \$30.00 PLUS AN SASE TO EITHER TONY EMANUELE, WA8RJF, 71 56 KORY COURT, CONCORD TOWNSHIP, OHIO 44077 OR TOM WHITTED, WA8WZG, 4641 PORT CLINTON EAST RD., PORT CLINTON, OHIO 43452. WEBSITE INFO IS **WWW.WA8WZG.COM** THIS IS ONE OF THE LARGEST GATHERING OF VHF WEAK SIGNAL ENTHUSIASTS

IN THE U.S., SO GET YOUR TICKETS EARLY AND JOIN US FOR AN ENJOYABLE EVENING AT THE DAYTON HAMVENTION!
TOM WHITTED WA8WZG

This and That

How Cold? In Franconia, NH the weather is said to be so cold that the natives lather their faces and then run out of doors, where the wind cuts their beards off. [Scientific American Feb.1848]

Electron and Transistor. 100 years ago, Joseph John Thompson discovered the electron. This tiny particle with only 2 thousands the mass of a proton and with a negative charge startled his colleges, who thought it to be a joke. But Thompson stated: "The production of electrons essentially involves the splitting up of the atom, with part of the mass of the atom getting free and becoming detached from the original atom- that part being one or more electrons." 50 years ago, Shockley, Brattain and Bardeen got the first transistor to work. Two remarkable discoveries from which tremendous benefits for mankind followed.

Three Types of Drivers: The insane are those who drive faster than you, the moronic who drive slower than you and ... you! [Time]

Cinema. The brain conceives rapidly changing pictures as continuous and gives us the illusion of movement. Cinema is an art form that solely relies on psycho-perceptual illusion generated by a machine.

[David Parkinson, History of Film]

Direct Broadcast Satellites. As of July 97 there were more than 5 million receivers (12 GHz) in the US, still a small number compared to some European countries, where almost everyone has it. What is in it for the hams? Excellent 10 GHz down converters with noise figures well under 1dB and with plenty of gain often combined with a feedhorn, receivers suitable for ATV tuning from 1 to 2 GHz, and small dishes.

Digital Data are said to be taking over. Not so fast! Printed books have been around for half a millennium and are still readable. In contrast "digital data" have to be copied every ten years to avoid physical deterioration and, more importantly, machines that can read the "outdated" formats are being junked. [Scientific American 1-98]

Oldest Taxidriver. In Lisbon, Portugal 100 year old Macedo still drives a 1928 Oldsmobile with 2.5 million km (1.56 million miles) on the same engine. Once a week every part gets cleaned, inspected, lubricated and as required, disassembled and reassembled or replaced.

A Glass of Milk. After the well publicized cloning of sheep, what is next? In a few years genetically engineered cows should be able to function as natural pharmaceutical factories. They could provide certain proteins in their milk which are currently supplied by medication.

[Heiner Nieman]

Summarized from a write-up in "The Week in Germany"

Problem and Solution. The only difference between a problem and a solution is that people understand the solution. [Charles Kettering]

Murphy Speaks: Any wire cut to length will be too short.

Tolerances will accumulate unidirectionally towards maximum difficulty to assemble!

Don't believe in miracles, depend on them!

Any error in any calculation will be in the direction of most harm.

In specifications Murphy's law will supersede Ohm's law.

The Final Word. The record breaking Antarctic Heard Island DXpedition last year had twenty “dedicated” hams involved. The video is well worth seeing. It concludes with the following statement: “It is easier to be a nut than to live with one!”

An FM Crystal Set

written by Jim Cross, contributed by Ed Garner, WR8A

I was reading my favorite Internet newsgroup the other day, and the discussion had turned to whether or not it was possible to make a crystal set capable of receiving FM stations. The opinions were varied. Some flatly stated that it was not possible. Others said it was possible, but the circuit was complex. Still others debated whether slope detection or ratio detection would or would not work, with proponents for each side. I do not have a lot of electronic experience, but it was all very interesting to me. It was especially interesting, given that I had seen a demonstration of a working FM crystal set made by my good friend Ed Garner.

I have prevailed upon Ed to provide plans for building this crystal set, along with some limited explanation (limited mostly by my ability to understand it). Here is a list of required parts:

- 1 - Set of high impedance headphones (about 2000 ohms). Do not use crystal phones.
- 1 - Set of adjustable TV rabbit ears
- 1 - 1N34 diode
- 1 - 20 inch length of 3 inch diameter copper sewer pipe
- 1 - 20 inch length of 0.75 inch diameter copper water pipe
- 1 - 4 inch by 4 inch square of copper or brass
- 1 - Variable capacitor, 3 uuf to 20 uuf
- 2 - BNC coaxial connectors
- 1 - Coax T connector
- 1 - Small metal box for detector
- 1 - About a 6 inch length of solid bus wire
- 1 - Set of appropriate connectors for your phones
- 1 - 6 feet to 15 feet length of coaxial cable
- * - Coaxial cable end piece connectors as required, or you could hardwire everything
- * - Appropriate solder, soldering iron, and tools

MAIN ASSEMBLY: The main body of the set is a resonant cavity designed to be resonant close to the FM band. Most of the dimensions are fairly critical, and good solder joints are required! During assembly, refer to the diagrams that follow. To assemble the main body, first solder the 0.75 inch diameter tube to the center of the 4 inch by 4 inch base. Prepare the 3 inch diameter tube by adding the tuning capacitor very close to the top. Then add the BNC connector on the opposite side of the tube, with the center conductor 4 inches from the bottom. Drill a hole 1.25 inches below the center of the BNC connector just large enough to pass the bus wire. Make a stiff, flattened "U" with the bus wire from the BNC connector to this hole on the inside of the tube. The bottom edge of this "U" should be 0.25 inches from the inner (0.75 inch diameter) tube, when the cavity is assembled. It is best to test the fit several times before soldering. Once the 3 inch tube is prepared, it is centered around the 0.75 inch tube and soldered in place. Now solder a connection from the variable capacitor to the top of the 0.75 inch tube. Note that the tops of these tubes are left open. The main assembly is now complete.

THE DETECTOR BOX: Assembly is straightforward as in the diagram. Drill a hole, and add a coaxial connector to one side of the box. Drill the appropriate hole(s) and add the phone plug on the other side. The outer part of the coaxial connector and one side of the phones are connected to the box. A 1N34 diode is soldered to the center of the connector and to the other phone connection.

PUTTING THE SYSTEM TOGETHER: Attach the "bottom leg" of the "T" connector to the BNC connector on the main tube. Connect the detector box to one side of the "T" using 13+/- 1 inch of coaxial cable (This dimension is critical). Connect the TV rabbit ears to the other side of the "T" using 6 to 15 feet of coaxial cable (A 3 element yagi can be substituted for the rabbit ears). Plug in the phones on the other side of the detector box, and you are ready to try out the FM crystal set!

Note: the rabbit ears should point 180 degrees from each other. It is advantageous to adjust the rabbit ears for the intended frequency (distances are from one end of the dipole to the other): 88 MHz = 63 inches, 100 MHz = 56 inches, 108 MHz = 52 inches.

from "Code" Amateur Radio collectors of America, Jan 98

MM Wave Activity in the UK

by Sam Jewel, G4DDK

Seeking a gap in the windy but mild weather, Peter, (G3PYB) and I, accompanied by Harold (G3UYM) tried again to set a new UK 47GHz distance record on the 25th of January. G3PYB went to Shenlow Hill in Oxfordshire, Whilst Harold and I went to Dunstable Downs in Bedfordshire, both north of London and popular beauty spots and recreation sites. The weather was dry, but very windy and cold. Ambient was about 38F and with the strong wind, felt like 20F. The path between Shenlow and Dunstable is 69km and pretty much line of sight. Both hills are about 1000 feet ASL. After about an hour G3PYB was able to receive a readable signal from me using NBFM on 47.186GHz. Unfortunately I was only able to receive a very weak NBFM signal from Peter, with much scintillation making it impossible to copy even MCW. Signals on 24GHz were at least 30 dB over noise on SSB and receivable wherever the open waveguide was aimed. Obstacle scatter at 24GHz is something else! So, no new UK record. Some valuable lessons learnt and a determination to try again.

I believe my receive mixer may be suffering from incorrect dc bias setting or the post mixer amplifier needs attention. Peter and I plan to try again soon.

